

What is claimed is:

1. A transcritical refrigeration system comprising:
a compression device to compress a refrigerant to a high pressure;
a heat rejecting heat exchanger for cooling said refrigerant;
an expansion device for reducing said refrigerant to a low pressure;
a heat accepting heat exchanger for evaporating said refrigerant, and an airflow exchanges heat with said refrigerant in said heat accepting heat exchanger; and
a variable speed device that moves said airflow through said heat accepting heat exchanger at a variable airflow speed.
2. The system as recited in claim 1 wherein said refrigerant is carbon dioxide.
3. The system as recited in claim 1 wherein said variable speed device is a fan.
4. The system as recited in claim 1 further including a drive that controls a device speed of said variable speed device.
5. The system as recited in claim 4 further including a temperature sensor that senses a temperature of said airflow, and said drive adjusts said variable speed device and said variable airflow speed of said airflow based on said temperature sensed by said temperature sensor.
6. The system as recited in claim 5 wherein said drive decreases said device speed of said variable speed device to decrease said variable airflow speed of said airflow when said temperature sensor detects that said airflow temperature is above a threshold temperature.
7. The system as recited in claim 6 wherein said threshold temperature is 80°F.

8. The system as recited in claim 5 wherein said variable speed device is deactivated prior to activating said compression device when said temperature sensor detects that said airflow temperature is above a threshold temperature.
9. The system as recited in claim 8 wherein said threshold temperature is 100°F
10. The system as recited in claim 8 further including a pressure sensor that senses a pressure at a suction of said compression device and said variable speed device is activated when said pressure sensor senses that said pressure at said suction of said compressor exceeds a threshold pressure.
11. The system as recited in claim 5 wherein said drive decrease said device speed of said variable speed device to decrease said variable airflow speed of said airflow when said sensor detects that said airflow temperature is below a threshold temperature.
12. The system as recited in claim 11 wherein said threshold temperature is 20°F.
13. The system as recited in claim 4 wherein varying said device speed of said variable speed devices optimizes a system performance.

14. A transcritical refrigeration system comprising:
 - a compression device to compress a refrigerant to a high pressure;
 - a heat rejecting heat exchanger for cooling said refrigerant;
 - an expansion device for reducing said refrigerant to a low pressure;
 - a heat accepting heat exchanger for evaporating said refrigerant, and an airflow exchanges heat with said refrigerant in said heat accepting heat exchanger;
 - a variable speed device that moves said airflow through said heat accepting heat exchanger at a variable airflow speed;
 - a temperature sensor that senses a temperature of said airflow, and said variable speed device varies said variable airflow speed of said airflow based on said temperature sensed by said temperature sensor.
15. The system as recited in claim 14, wherein said refrigerant is carbon dioxide.
16. The system as recited in claim 14 wherein a drive that controls a device speed of said variable speed device.
17. The system as recited in claim 16 wherein said drive decreases said device speed of said variable speed device to decrease said variable airflow speed of said airflow when said temperature sensor detects that said airflow temperature is above a threshold temperature..
18. The system as recited in claim 17 wherein said threshold temperatures is 80°F.
19. The system as recited in claim 16 wherein said variable speed device is deactivated prior to activating said compression device when said temperature sensor detects that said airflow temperature is above a threshold temperature.
20. The system as recited in claim 19 wherein said threshold temperature is 100°F .

21. The system as recited in claim 20 further including a pressure sensor that senses a pressure at a suction of said compression device and said variable speed device is activated when said pressure sensor senses that said pressure at said suction of said compressor exceeds a threshold pressure.

22. The system as recited in claim 16 wherein said drive decrease said device speed of said variable speed device to decrease said variable airflow speed of said airflow when said sensor detects that said airflow temperature is below a threshold temperature.

23. The system as recited in claim 22 wherein said threshold temperature is 20°F.

24. The system as recited in claim 17 wherein varying said device speed of said variable speed devices optimizes a system performance.

25. A method of regulating a coefficient of performance of a transcritical refrigeration system comprising the steps of:

compressing a refrigerant to said high pressure;

cooling said refrigerant;

expanding said refrigerant to a low pressure;

providing an airflow at a variable airflow speed;

evaporating said refrigerant by exchanging heat between said refrigerant and said airflow;

sensing a temperature of said airflow; and

adjusting said variable airflow speed based on said temperature of said airflow.